## REMARKS

Claims 13-32 are all the claims presently pending in the application. Claims 13, 25 and 28 have been amended to more particularly define the invention. Claims 29-32 have been added to claim additional features of the invention.

It is noted that the claim amendments are made only for more particularly pointing out the invention, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. Further, Applicant specifically states that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Claims 13, 15, 17-18, 23, and 25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Anzaki, et al. reference (U.S. Patent No. 6,316,110 B1). Claims 16 and 24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Anzaki, et al. reference in view of the Okamura, et al reference (U.S. Patent No. 6,104,530). Claims 14, 19, 21-22, 26, and 28 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Anzaki, et al. reference, in view of the Noreika, et al. reference (U.S. Patent No. 3,915,764) and either the Nulman reference (U.S. Patent No. 5,754,297) or the Shiroishi, et al reference (U.S. Patent No. 4,833,020).

In addition, claims 20 and 27 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Anzaki, et al. reference, in view of the Noreika, et al. reference and either the Nulman reference or Shiroishi, et al. reference and in further view of the Okamura, et al. reference. Claims 13, 15-18, and 23-25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Okamura, et al. reference, in view of the Kenzo, et al. reference (JP 09-176837A). Claims 14, 19-22, and 26-28 stand rejected under 35 U.S.C. § 103(a) as

being unpatentable over the Okamura, et al. reference, in view of the Kenzo, et al. reference, and in further view of the Noreika, et al. reference and either the Nulman reference or the Shiroishi, et al. reference.

These rejections are respectfully traversed in the following discussion.

## I. THE CLAIMED INVENTION

The claimed invention (e.g., as recited in claim 13) is directed to a method for producing a transparent laminate. The method includes preparing a transparent substrate, depositing a high-refractive-index transparent thin film by a vacuum dry process, depositing a silver transparent conductive thin film by a vacuum dry process, repeating the depositing of the high-refractive-index transparent thin film and the silver transparent conductive thin film at least three times to thereby form at least three combination thin-film layers of the high-refractive-index transparent thin film and the silver transparent conductive thin film successively laminated on a surface of said transparent substrate, and depositing another high-refractive-index transparent thin film on a surface of the combination thin-film layer by the vacuum dry process.

Importantly, the temperature T (K) of the transparent substrate at the time of the deposition of the silver transparent conductive thin films is set to be in a range $340 \leq T \leq 410$, and a deposition rate R (nm/sec) of said silver transparent conductive thin films is set to be $R = (1/40)x(T-300)\pm0.5$.

Conventional transparent laminates have included metal thin films to reduce electromagnetic waves and near-infrared rays. Additionally, the metal thin films can also prevent reflection of visible rays. However, these transparent laminates have not been useful

as a plasma display panel filter because the visible light transmitting properties are not adequate. For example, the conventional transparent laminates could not be set with a neutral gray color tone. In particular, these conventional transparent laminates do not have constant transmittance over the entire visible light range (Application at page 2, line 13-page 4, line 12).

The claimed invention, on the other hand, includes a method of forming a transparent laminate, in which the temperature T (K) of the transparent substrate at the time of the deposition of the silver transparent conductive thin films is set to be in a range $340 \leq T \leq 410$, and a deposition rate R (nm/sec) of said silver transparent conductive thin films is set to be $R = (1/40)x(T-300)\pm0.5$ (Application at page 16, line 11-page 17, line17; Figures 1-2).

These features allow the claimed method to provide a transparent laminate having a reduced wavelength dependence of visible light transmittance so that the laminate can exhibit the color tone of neutral gray without the addition of any absorbent such as a dye. The laminate also has transmittance which is high enough over the entire visible light range and can satisfy all the properties such as electromagnetic wave shielding, near-infrared cutting, visible light low-reflectance, etc. as required of a PDP film in spite of the simple structure. Moreover, the invention provides a light-weight thin PDP filter of good visibility (Application at page 7, lines 5-15).

## II. THE PRIOR ART REFERENCES

### A. The Anzaki Reference

Regarding the rejection of claims 13, 15, 17-18, 23, and 25, the Examiner alleges that it would have been obvious to modify the Anzaki et al. reference to form the claimed

invention. Applicant submits, however, that these references would not have been combined and even if combined, the combination would not teach or suggest each and every element of the claimed invention.

Anzaki is directed to an electromagnetic wave filter which is intended to prevent incorrect actions of a remote control of appliances. The filter includes a transparent substrate, a wave shield film, and a resin protective film (Anzaki at Abstract).

However, Anzaki does not teach or suggest "*when said silver transparent conductive thin films are deposited by the vacuum dry process, a temperature T (K) of said transparent substrate at the time of the deposition of said films is set to be in a range 340≤T≤410, and a deposition rate R (nm/sec) of said silver transparent conductive thin films is set to be R = (1/40)x(T-300)±0.5*", as recited, for example, in claim 13.

As noted above, unlike conventional methods, in the method of the claimed invention the temperature T (K) of the transparent substrate at the time of the deposition of the silver transparent conductive thin films is set to be in a range 340≤ T≤ 410, and a deposition rate R (nm/sec) of said silver transparent conductive thin films is set to be R = (1/40)x(T-300)±0.5 (Application at page 16, line 11-page 17, line17; Figures 1-2). These features allow the method to provide a transparent laminate having a reduced wavelength dependence of visible light transmittance so that the laminate can exhibit the color tone of neutral gray without the addition of any absorbent such as a dye. The laminate also has transmittance which is high enough over the entire visible light range and can satisfy all the properties such as electromagnetic wave shielding, near-infrared cutting, visible light low-reflectance, etc. as required of a PDP film in spite of the simple structure. (Application at page 7, lines 5-15).

Clearly, these features are not taught or suggested by Anzaki. In fact, the Examiner

concedes that Anzaki does not teach or suggest these novel features (Office Action at page 9, lines 1-4).

Therefore, Applicant respectfully submits that there are elements of the claimed invention which are not taught or suggested by Anzaki. Therefore, the Examiner is respectfully requested to withdraw this rejection.

**B. The Okamura Reference**

Regarding the rejection of claims 16 and 24, the Examiner alleges that the Okamura et al. reference would have been combined with the Anzaki et al. reference to form the claimed invention. Applicant submits, however, that these references would not have been combined and even if combined, the combination would not teach or suggest each and every element of the claimed invention.

The Okamura reference discloses a transparent laminate for a display. The laminate includes a transparent conductive layer and metal film layers (Okamura at Abstract).

However, Applicant submits that these references would not have been combined as alleged by the Examiner. Indeed, the references are directed to completely different matters and problems. Specifically, Ansaki is directed to an electromagnetic wave filter which is allegedly improved by adding palladium to a divided metal layer, whereas Okamura is intended to improve a shielding effect of a laminate by using a large number of wave-reflecting interfaces and high conductivity (Okamura at col. 8, lines 8-16).

Thus, one of ordinary skill in the art would not have been motivated to modify the Anzaki et al. reference based on the disclosure of the Okamura et al. reference. Therefore, the references would not have been combined, absent hindsight.

Further, Applicant submits that the Examiner can point to no motivation or suggestion in the references to urge the combination as alleged by the Examiner. Indeed, Applicant submits that nowhere do the references teach or suggest such a combination as alleged by the Examiner. Therefore, the Examiner has failed to make a prima facie case of obviousness.

Moreover, neither Okamura, nor Anzaki, nor any combination thereof teaches or suggests "*when said silver transparent conductive thin films are deposited by the vacuum dry process, a temperature T (K) of said transparent substrate at the time of the deposition of said films is set to be in a range 340≤T≤410, and a deposition rate R (nm/sec) of said silver transparent conductive thin films is set to be R = (1/40)x(T-300)±0.5*", as recited, for example, in claim 13.

As noted above, unlike conventional methods, in the method of the claimed invention the temperature T (K) of the transparent substrate at the time of the deposition of the silver transparent conductive thin films is set to be in a range 340≤ T≤ 410, and a deposition rate R (nm/sec) of said silver transparent conductive thin films is set to be R = (1/40)x(T-300)±0.5 (Application at page 16, line 11-page 17, line17; Figures 1-2).

Clearly, these features are not taught or suggested by Okamura. Indeed, the Examiner has not even alleged that Okamura teaches or suggests these features.

In fact, as noted above, Okamura is merely intended to improve a shielding effect of a laminate by using a large number of wave-reflecting interfaces and high conductivity. Indeed, Okamura fails to even recognize the importance of a deposition rate. Certainly, Okamura fails to teach or suggest a deposition rate R (nm/sec) of silver transparent conductive thin films which is set to be R = (1/40)x(T-300)±0.5. Therefore, Okamura reference does not remedy the deficiencies of Anzaki.

Therefore, Applicant submits that these references would not have been combined and even if combined, the combination would not teach or suggest each and every element of the claimed invention.

**C. The Noreika, Nulman and Shiroishi References**

Regarding the rejection of claims 14, 19, 21-22, 26, and 28, the Examiner alleges that the Noreika et al. reference would have been combined with the Anzaki et al. reference and further that either the Nulman reference or the Shiroishi et al. reference would have been combined with the combination of the Anzaki et al. reference and the Noreika et al. reference to form the claimed invention. The Examiner also alleges that Nulman or Shiroishi would have been combined with Anzaki, Noreika and Okamura to form the claimed invention of claims 20 and 27.

Applicant submits, however, that these references would not have been combined and even if combined, the combination would not teach or suggest each and every element of the claimed invention.

The Noreika et al. reference is specifically directed to an alleged improvement of the formation of thin doped layers of epitaxial gallium arsenide and other semiconductor materials for use with microwave devices (col. 1, lines 10-12 and 21-22; and col. 2, lines 11-16). The doped semiconductor material layers which are deposited by the system disclosed by the Noreika et al. reference are not used in the transparent laminate disclosed by the Anzaki et al. reference.

Clearly, one of ordinary skill in the art would not have been motivated to modify the transparent laminate disclosed by the Anzaki et al. reference with an improved method for

forming thin doped layers of semiconductor materials as disclosed by the Noreika et al. reference.

Even assuming arguendo, that one of ordinary skill in the art would have combined the teachings of the Noreika et al. reference with the teachings of the Anzaki et al. reference, one of ordinary skill in the art would not have been motivated to further modify this combination with either of the teachings of the Nulman reference or the Shiroishi et al. reference.

In contrast to the Anzaki et al. reference and the Noreika et al. reference, the Nulman reference is directed to completely different matters and problems.

In particular, the Nulman reference is directed to improving a method of deposition for semiconductor devices which are especially complex and expensive (col. 1, lines 17-32) by providing a deposition rate monitor (col. 2, lines 12-17). Therefore, one of ordinary skill in the art would not have been motivated to modify the method of producing a transparent laminate as disclosed by the Anzaki et al. reference with an improved method of deposition for semiconductor devices as disclosed by the Nulman reference because the transparent laminate disclosed by the Anzaki et al. reference does not include semiconductor devices.

Further, the Shiroishi et al. reference is directed to providing a magnetic recording medium which is capable of reading and writing with a high recording density and having a high signal to noise ratio but less modulation. One of ordinary skill in the art would not have been motivated to modify the transparent laminate disclosed by the Anzaki et al. reference with the magnetic recording medium disclosed by the Shiroishi et al. reference because the transparent laminate has absolutely nothing to do with magnetic recording media.

In addition, Okamura is intended to improve a shielding effect of a laminate by using a large number of wave-reflecting interfaces and high conductivity, which is completely unrelated to the other references.

Therefore, one of ordinary skill in the art would not have been motivated to combine the teachings of the Nulman or Shiroishi references with the alleged combination of the Anzaki et al. reference and the Noreika et al. reference.

Further, Applicant submits that the Examiner can point to no motivation or suggestion in the references to urge the combination as alleged by the Examiner. Indeed, Applicant submits that nowhere do the references teach or suggest such a combination as alleged by the Examiner. Therefore, the Examiner has failed to make a prima facie case of obviousness.

Moreover, neither Noreika, nor Nulman, nor Shiroishi, nor Okamura, nor any combination thereof teaches or suggests "*when said silver transparent conductive thin films are deposited by the vacuum dry process, a temperature T (K) of said transparent substrate at the time of the deposition of said films is set to be in a range* $340 \leq T \leq 410$, *and a deposition rate R (nm/sec) of said silver transparent conductive thin films is set to be* $R = (1/40)x(T-300)\pm 0.5$", as recited, for example, in claim 13.

As noted above, unlike conventional methods, in the method of the claimed invention the temperature T (K) of the transparent substrate at the time of the deposition of the silver transparent conductive thin films is set to be in a range $340 \leq T \leq 410$, and a deposition rate R (nm/sec) of said silver transparent conductive thin films is set to be $R = (1/40)x(T-300)\pm 0.5$ (Application at page 16, line 11-page 17, line17; Figures 1-2).

Clearly, these features are not taught or suggested by Noreika, Nulman or Shiroishi. Indeed, the Examiner has not even alleged that Noreika teaches or suggests these features. In

fact, the Examiner concedes that Noreika merely teaches that deposition rates can be accurately controlled in RF sputtering. That is, the Examiner concedes that Noreika does not teach optimizing a deposition rate for a transparent laminate.

However, the Examiner alleges that Nulman and Shiroishi teach "that the deposition rate in a sputtering process is an important processing characteristic and can be determined experimentally". The Examiner presumably relies on this vague allegation to somehow suggest that the claimed deposition rate R (nm/sec) of silver transparent conductive thin films which is set to be R = (1/40)x(T-300)±0.5, has no patentable significance. The Examiner is clearly incorrect.

In fact, Nulman merely teaches monitoring deposition rates (Nulman at col. 3, lines 33-35). Nowhere does Nulman teach or suggest optimizing a deposition rate to provide a particular result. Certainly, Nulman does not teach or suggest optimizing a deposition rate to provide the desirable results that can be provided by the claimed invention, such as good electromagnetic wave shielding, near-infrared cutting, and visible light low-reflectance.

Similarly, Shiroishi merely teaches that a "suitable" deposition rate may be determined by experiments (Shiroishi at col. 3, lines 9-25). However, by "suitable", Shiroishi implies "suitable for providing a magnetic film having a grain size of up to 1000 Å and is oriented so that its lattice matching with the magnetic film is high" (Shiroishi at col. 3, lines 32-38). That is, Shiroishi has nothing to do with transparent laminates, such as a PDP film. Thus, as with Nulman, Shiroishi does not teach or suggest optimizing a deposition rate to provide the desirable results that can be provided by the claimed invention, such as good electromagnetic wave shielding, near-infrared cutting, and visible light low-reflectance.

Therefore, the Examiner's allegation that Nulman and Shiroishi somehow show that

the claimed deposition rate R (nm/sec) of silver transparent conductive thin films which is set to be R = (1/40)x(T-300)±0.5, has no patentable significance, is clearly not reasonable. Indeed, Applicant would further point out to the Examiner that none of the cited references even teach or suggest that a deposition rate should somehow be a function of the substrate temperature. Thus, the cited references are clearly unrelated to the claimed invention.

Indeed, Applicant submits that the MPEP provides that "[a] particular parameter must first be recognized as a result-effective variable, i.e., **a variable which achieves a recognized result**, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation" (MPEP at §2144.05) (emphasis added). Here, the only result that these references suggest as being affected by deposition rate may include grain size of a magnetic film or lattice matching of a magnetic film. Clearly this is unrelated to optimizing a deposition rate for providing the desired results of the claimed invention.

That is, nowhere do the references here teach or suggest that deposition rate may have any effect on the quality of a transparent laminate. Certainly, the references do not teach or suggest that a deposition rate can effect characteristics such as good electromagnetic wave shielding, near-infrared cutting, and visible light low-reflectance. Therefore, it is clearly unreasonable to suggest that these references teach or suggest that a deposition rate of a silver transparent conductive thin films in a method of forming a transparent laminate is merely a result-effective variable.

Therefore, Applicant submits that these references would not have been combined and even if combined, there are elements of the claimed invention that are not taught or suggest by the combination.

**D. The Kenzo Reference**

Regarding the rejection of claims 14, 19-22 and 26-28, the Examiner alleges that the Kenzo et al. reference would have been combined with the Okamura et al. reference , the Noreika reference and either the Nulman or Shiroishi references to form the claimed invention. Applicant submits, however, that these references would not have been combined and even if combined, the combination would not teach or suggest each and every element of the claimed invention.

In contrast to the other references, the Kenzo et al. reference is specifically directed to improving a transparent electric conduction film by providing a transparent oxide, which consists of a mixed oxide of indium oxide, a cerium oxide, etc., rather than an ITO thin film or a IO thin film, to sandwich a silver containing layer. One of ordinary skill in the art would not have been motivated to modify the teachings of the Okamura et al. reference which is directed to laminating three or more repeated layers of transparent film and metal film layer by substituting a mixed oxide of indium oxide, a cerium oxide, etc. as disclosed by the Kenzo et al. reference for the high-refractive-index transparent film disclosed by the Kenzo et al. reference. Thus, the references would not have been combined, and certainly any alleged Okamura/Kenzo combination would not have been combined with Noreika, and Nulman or Shiroishi, absent hindsight.

Further, Applicant submits that the Examiner can point to no motivation or suggestion in the references to urge the combination as alleged by the Examiner. Indeed, Applicant submits that nowhere do the references teach or suggest such a combination as alleged by the Examiner. Therefore, the Examiner has failed to make a prima facie case of obviousness.

Moreover, neither Kenzo, nor Okamura, nor Noreika, nor Nulman, nor Shiroishi, nor

any combination thereof teaches or suggests "*when said silver transparent conductive thin films are deposited by the vacuum dry process, a temperature T (K) of said transparent substrate at the time of the deposition of said films is set to be in a range 340≤T≤410, and a deposition rate R (nm/sec) of said silver transparent conductive thin films is set to be R = (1/40)x(T-300)±0.5*", as recited, for example, in claim 13.

As noted above, unlike conventional methods, in the method of the claimed invention the temperature T (K) of the transparent substrate at the time of the deposition of the silver transparent conductive thin films is set to be in a range 340≤ T≤ 410, and a deposition rate R (nm/sec) of said silver transparent conductive thin films is set to be R = (1/40)x(T-300)±0.5 (Application at page 16, line 11-page 17, line17; Figures 1-2).

Clearly, these features are not taught or suggested by Kenzo. Indeed, the Examiner has not even alleged that Kenzo teaches or suggests these features. In fact, as noted above, Kenzo merely discloses a transparent electric conduction film by providing a transparent oxide. Thus, Kenzo is clearly unrelated to the claimed invention and clearly fails to make up for the deficiencies of the other references.

Therefore, Applicant submits that these references would not have been combined and even if combined, there are elements of the claimed invention that are not taught or suggest by the combination.

## IV. FORMAL MATTERS AND CONCLUSION

Applicant notes that a Submission of Corrected Formal Drawings is submitted concurrently herewith to include numerals on the Reflectivity scale portion of Figure 3.

In view of the foregoing, Applicant submits that claims 13-32, all the claims presently

pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

Date: 4/16/04

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## CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that the foregoing Amendment was filed by facsimile with the United States Patent and Trademark Office, Examiner Wesley Markham, Group Art Unit # 1762 at fax number (703) 872-9306 this 16th day of April, 2004.

Phillip E. Miller
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